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| APPLICATION NO. 321 | FILING DATE 03/08/97 | FIRST NAMED INVENTOR VUORINEN | ATTORNEY DOCKET NO. |
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IM31/0301

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| EXAMINER |
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1731

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| ART UNIT | PAPER NUMBER |
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DATE MAILED: 19

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action SummaryApplication No.
08/925,321

Applicant(s)

VUORINEN et al

Examiner

Steve AlvoGroup Art Unit
1731☒ Responsive to communication(s) filed on Dec 16, 1998☒ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1, 3-8, and 10-31 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1, 3-8, and 10-31 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.☐ received in Application No. (Series Code/Serial Number) _____.☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☐ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-8 and 10-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 511 695 in view of ADMITTED PRIOR ART (page 4, lines 13-22 of the instant specification) with or without LACHENAL ET AL with or without MARECHAL.

EP 511 695 teaches treating chemical cellulose pulp (see Example 1) produced by alkaline delignification (sulphate pulp) having a kappa number under 24 (kappa number 17) with an acid at a pH of 2.3 (Table I) at a temperature of 60° C for 30 minutes. This is the same hexenuronic acid removal step taught by Applicant. It would have been obvious to one of ordinary skill in the art that the sulphate pulp of EP 511 695 would contain hexenuronic acid as such is taught by the ADMITTED PRIOR ART. The sulphate (kraft) pulp of EP 511 695 would contain hexenuronic acid as it is contained in all sulphate pulps. The mere discovery of an additional, possibly heretofore unrecognized feature of a process, otherwise obvious over the prior art, does not alone render that process unobvious. In the instant case EP 511 695 teaches treating kraft pulp with the same acid treatment used by Applicant prior to a bleaching step. The discovery that the acid step removes hexenuronic acid, does not render the process unobvious as the acid step of EP 511 695 would react on the kraft pulp (which contains hexenuronic acid) in the same manner taught by Applicant, e.g. remove hexenuronic acid. See In re Best 195 USPQ 430. The claimed process

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steps do not differ from the process steps of EP 511 695, e.g. treating kraft pulp with an acid followed by bleaching. It would have been obvious to use the higher temperatures disclosed by EP 511 695, e.g. up to 95°C, to speed up the metal ion removal step of EP 511 695 as chemical reactions are known to be temperature rate effective. If this is not obvious then LACHENAL ET AL teaches that raising the temperature in the acid pretreatment results in a further decrease in kappa No. after the bleaching stage and further improves the bleachability of the pulp as kraft lignin becomes more susceptible to solubilization (See LACHENAL ET AL, page 147, second half of column 1, including Table 4). It would have been obvious to one of ordinary skill in the art to further reduce the kappa No. And increase the bleaching of EP 511 695 by increasing the temperature of the acid treatment as taught by LACHENAL ET AL. Claim 3 is rejected as the equation includes values within the time range of EP 511 695, e.g. temperature of 95°C and time of 120 minutes (see page 3, lines 55-59). See EP 511 695, page 3, lines 48-54 for treating hardwood kraft pulp with a kappa No. As low as 5. See page 3, lines 6-10 for P, Z, O, P_A, P-Z and (PO)-Z bleach sequences. Claims 20 and 21 are rejected as EP 511 695 teaches using further bleach stages to obtain brightness levels above 80 ISO (see Example 3). MARECHAL teaches that acid hydrolysis at high temperatures, e.g. 95-100°C (page 264, line 3), improves (e.g. lower kappa number) the following bleaching of pulp (e.g. peroxide, oxygen or chlorine). It would have been obvious to use the 95°C temperature of the EP 511 695 to obtain the improvements in subsequent bleaching as taught by MARECHAL. MARECHAL also teaches that the acid hydrolysis removes organic acids (pages 272-278).

carboxylic acids

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The first Declaration of Mr. Vuorinen in the Parent Application has been considered but does not overcome the rejection as the comparison was made to LACHENAL ET AL and not to the primary reference (EP 511 695). EP 511 695 which teaches a preferred pH of 2-4. This corresponds to the disclosed pH of 2-5 and the disclosed preferred pH of 2.5 to 4 (specification, page 8, lines 19-22). Although EP 511 695 teaches a preferred temperature of 40-80°C, temperatures up to 95°C are taught (page 3, lines 55-56). The temperature range of EP 511 695 overlaps the claimed range. See Ex parte Lee 31 USPQ 2d 1105,1106. Besides LACHENAL ET AL discloses using a hot acid stage (up to 90°C) at a pH 2.0 for a time of 2 hours. This does not significantly differ from the conditions taught by Applicant. Paragraph 12 of the Declaration states that LACHENAL optimally treats the pulp at a pH of 2 for a time of 60-80°C. From Table 4 of LACHENAL ET AL it would have been obvious to use a temperature of 90°C to obtain an improved Kappa No. (17.5) and increased bleaching. Exhibit D of the Declaration shows that at pH of 2.0 only 6.5 meq/kg of hexenuronic acid is removed is not convincing as this is at 70°C and not at the 95°C of EP 511 695 or the 90°C of LACHENAL ET AL. Besides, EP 511 695 teaches a preferred temperature of up to 80°C. Applicant has not compared the 80°C of EP 511 695 to the claimed 85°C. Besides it would have been obvious to use the 95°C of EP 511 695 for the advantages taught by MARECHAL.

The Second Declaration of Mr Vuorinen is not convincing as MARECHAL concludes that under certain conditions the viscosity decrease is acceptable, e.g. page 262, second paragraph and last paragraph on page 279. In addition MARECHAL shows in Table 3 that the viscosity

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decrease in the acid treatment stage is less than the normal oxygen delignification (850 vs. 767). Clearly a viscosity of 850 is acceptable for pulp while the Kappa number was lowered from 20.1 to 11.7 (42%) and to a kappa number of 2.6 after oxygen bleaching and MARECHAL teaches that a viscosity greater than 760 is an acceptable viscosity (page 262, paragraph 2, line 4). It is noted that MARECHAL also teaches that the acid treated pulp can be bleached with peroxide, page 266, line 3. In the Declaration, paragraph 4 it is argued that the yield of MARECHAL is low. However, on page 271, MARECHAL teaches that the yield after hydrolysis was 96.3% after an acid treatment at 103 degrees C. There is no evidence that the instant process obtains a better yield than the process of MARECHAL.

The advantage obtained by Applicant is a reduction in bleach chemical consumption. LACHENAL and MARECHAL teach that increases the pretreatment temperature results in an increased bleaching, as represented by the decreased Kappa No. in Table 4 of LACHENAL after the peroxide bleaching and TABLE 3 of MARECHAL. It would have obvious to the artisan that increasing the bleaching would enable the artisan to use a lessor amount of bleaching agent. Thus any advantage obtained by Applicant would have been obvious from the combination of the references. MARECHAL (paragraph bridging pages 263-264) appears to be treating the same pulp (alkaline, e.g. AQ) under the same conditions of temperature (95-100 degrees C) for the same amount of time (40 minutes) and at the same pH (2.18), see MARECHAL, at a consistency of between the claimed 1-50% to lower the kappa number at least 2 kappa units. Any hexenuronic acid removed by Applicant would have also been removed by MARECHAL.

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

When filing an **“Official” FAX** in Art Unit 1731, please indicate in the Header (upper right) **“Official”** for papers that are to be entered into the file. The **“Official” FAX** phone number for this Art Unit is **(703) 305-7718** for all papers except amendments after final, for amendments after final the FAX number is 703-305-3599. When filing an **“Unofficial” FAX** in Group 1730, please indicate in the Header (upper right) **“Unofficial”** for Draft Documents and other Communications with the PTO that are not for entry into the file of the application. This will expedite processing of your papers. The **“Unofficial” FAX** phone number for this Art Unit (1731) is **(703) 305-7115**.

Any inquiry concerning this communication or earlier communications from the **primary examiner** should be directed to **Steve Alvo** whose telephone number is **(703) 308-2048**. The Examiner can normally be reached on Monday - Friday from **6:30 AM - 3:00 PM (EST)**.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman, can be reached on 703-308-3837.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Group receptionist** whose telephone number is **(703) 308-0661**.

A handwritten signature in black ink, appearing to read 'Steve Alvo', with a large, stylized initial 'S'.

STEVE ALVO
PRIMARY EXAMINER
ART UNIT 1731

MSA
March 2, 1999